

CT-PPS Quartic Geant4 simulation tool

Generated by Doxygen 1.8.8

Fri Feb 6 2015 12:40:15



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# Chapter 1

## Hierarchical Index

### 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

G4SteppingVerbose	
QuartLSteppingVerbose . . . . .	9
G4UImessenger	
QuartLPrimaryGeneratorMessenger . . . . .	8
G4UserEventAction	
QuartLEventAction . . . . .	7
G4UserRunAction	
QuartLRunAction . . . . .	8
G4UserStackingAction	
QuartLStackingAction . . . . .	8
G4VSensitiveDetector	
DetectorSD . . . . .	5
G4VUserActionInitialization	
QuartLActionInitialization . . . . .	5
G4VUserDetectorConstruction	
QuartLDetectorConstruction . . . . .	6
G4VUserPrimaryGeneratorAction	
QuartLPrimaryGeneratorAction . . . . .	7
QuartLAnalyzer . . . . .	6



## Chapter 2

# Class Index

### 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

<a href="#">DetectorSD</a>	5
<a href="#">QuartLActionInitialization</a>	5
<a href="#">QuartLAnalyzer</a>	6
<a href="#">QuartLDetectorConstruction</a>	6
<a href="#">QuartLEventAction</a>	7
<a href="#">QuartLPrimaryGeneratorAction</a>	7
<a href="#">QuartLPrimaryGeneratorMessenger</a>	8
<a href="#">QuartLRunAction</a>	8
<a href="#">QuartLStackingAction</a>	8
<a href="#">QuartLSteppingVerbose</a>	9



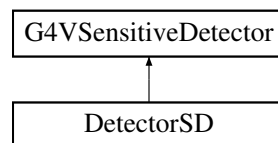


## Chapter 3

# Class Documentation

### 3.1 DetectorSD Class Reference

Inheritance diagram for DetectorSD:



#### Public Member Functions

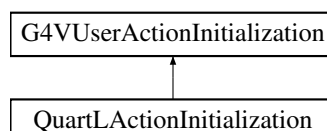
- **DetectorSD** (G4String)
- void **Initialize** (G4HCofThisEvent \*)
- G4bool **ProcessHits** (G4Step \*, G4TouchableHistory \*)
- void **EndOfEvent** (G4HCofThisEvent \*)

The documentation for this class was generated from the following file:

- include/DetectorSD.hh

### 3.2 QuartLActionInitialization Class Reference

Inheritance diagram for QuartLActionInitialization:



#### Public Member Functions

- virtual void **BuildForMaster** () const
- virtual void **Build** () const

The documentation for this class was generated from the following file:

- include/QuartLActionInitialization.hh

### 3.3 QuartLAnalyzer Class Reference

```
#include <QuartLAnalyzer.hh>
```

#### Public Member Functions

- [QuartLAnalyzer](#) (G4String filename="events.root")  
*Default class constructor to book the TTree and its different leaves to store the information.*
- void [AddHitInEvent](#) (G4Step \*step)  
*Add a new photon hit on the PMT in the events' collection.*
- void [Store](#) ()  
*Store the TTree onto an external ROOT file.*

#### 3.3.1 Detailed Description

Analysis class intended to store into a TTree the photons kinematic information for each event.

#### 3.3.2 Constructor & Destructor Documentation

##### 3.3.2.1 QuartLAnalyzer::QuartLAnalyzer ( G4String *filename* = "events.root" )

Default class constructor to book the TTree and its different leaves to store the information.

Parameters

<i>in</i>	<i>filename</i>	The file name to store the output tree.
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#### 3.3.3 Member Function Documentation

##### 3.3.3.1 void QuartLAnalyzer::AddHitInEvent ( G4Step \* *step* )

Add a new photon hit on the PMT in the events' collection.

Parameters

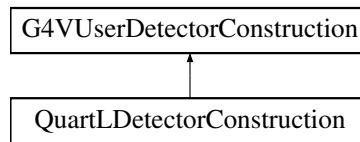
<i>in</i>	<i>step</i>	The Geant4 iterative step from which the photon kinematics is extracted.
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The documentation for this class was generated from the following file:

- include/QuartLAnalyzer.hh

### 3.4 QuartLDetectorConstruction Class Reference

Inheritance diagram for QuartLDetectorConstruction:



### Public Member Functions

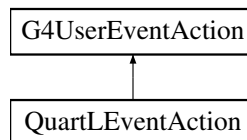
- G4VPhysicalVolume \* **Construct** ()

The documentation for this class was generated from the following file:

- include/QuartLEventAction.hh

## 3.5 QuartLEventAction Class Reference

Inheritance diagram for QuartLEventAction:



### Public Member Functions

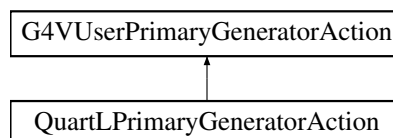
- void **BeginOfEventAction** (const G4Event \*)
- void **EndOfEventAction** (const G4Event \*)

The documentation for this class was generated from the following file:

- include/QuartLEventAction.hh

## 3.6 QuartLPrimaryGeneratorAction Class Reference

Inheritance diagram for QuartLPrimaryGeneratorAction:



### Public Member Functions

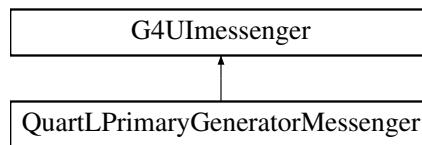
- void **GeneratePrimaries** (G4Event \*)
- void **SetOptPhotonPolar** ()
- void **SetOptPhotonPolar** (G4double)

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorAction.hh

### 3.7 QuartLPrimaryGeneratorMessenger Class Reference

Inheritance diagram for QuartLPrimaryGeneratorMessenger:



#### Public Member Functions

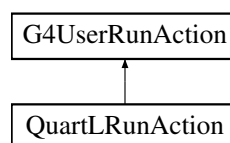
- **QuartLPrimaryGeneratorMessenger** ([QuartLPrimaryGeneratorAction](#) \*)
- void **SetNewValue** (G4UImessenger \*, G4String)

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorMessenger.hh

### 3.8 QuartLRunAction Class Reference

Inheritance diagram for QuartLRunAction:



#### Public Member Functions

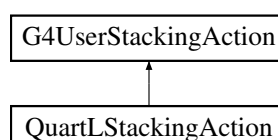
- **QuartLRunAction** ([QuartLAnalyzer](#) \*analyzer=0)
- void **BeginOfRunAction** (const G4Run \*aRun)
- void **EndOfRunAction** (const G4Run \*aRun)
- [QuartLAnalyzer](#) \* **GetAnalyzer** ()

The documentation for this class was generated from the following file:

- include/QuartLRunAction.hh

### 3.9 QuartLStackingAction Class Reference

Inheritance diagram for QuartLStackingAction:



### Public Member Functions

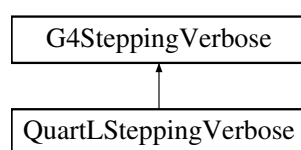
- G4ClassificationOfNewTrack **ClassifyNewTrack** (const G4Track \*aTrack)
- void **NewStage** ()
- void **PrepareNewEvent** ()

The documentation for this class was generated from the following file:

- include/QuartLStackingAction.hh

## 3.10 QuartLSteppingVerbose Class Reference

Inheritance diagram for QuartLSteppingVerbose:



### Public Member Functions

- void **StepInfo** ()
- void **TrackingStarted** ()

The documentation for this class was generated from the following file:

- include/QuartLSteppingVerbose.hh